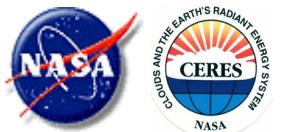


CERES on Terra & Aqua for the GERB ground validation

Z. Peter Szewczyk
G. Louis Smith
Kory J.Priestley
Ernesto Lopez-Baeza

The CERES STM, Hampton VA, 2003



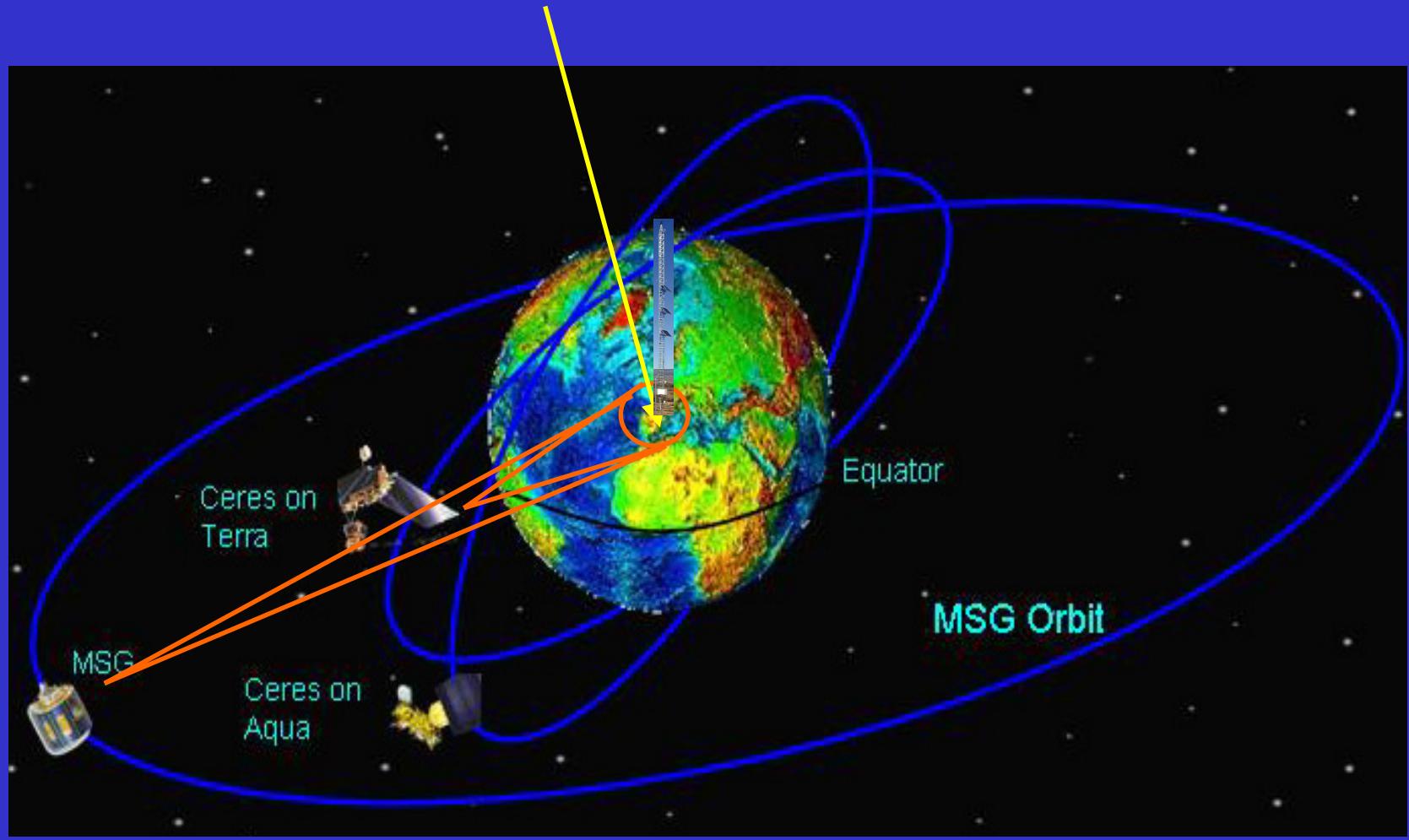
Motivation

- To introduce the first ground validation station for the GERB instrument (Valencia Anchor Station)
- To report on the CERES data collection for the validation project (SCALES)



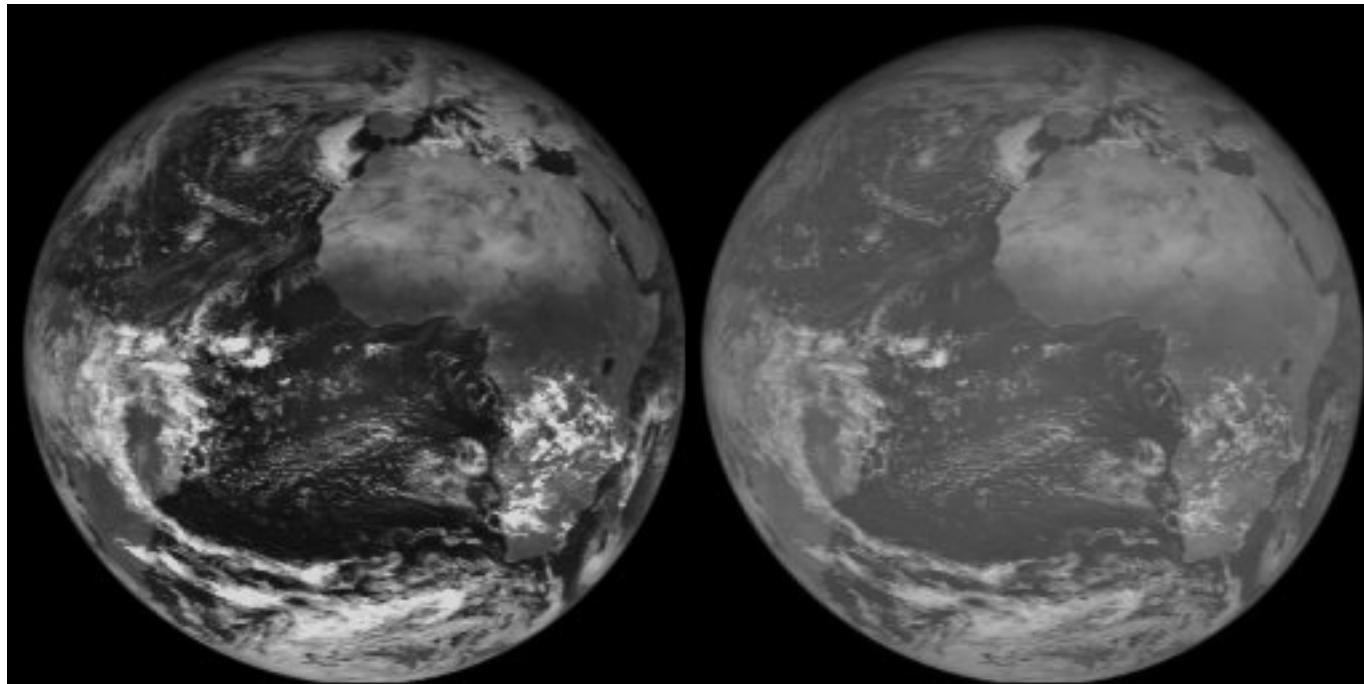
1st GERB Ground Validation Campaign

VALENCIA ANCHOR STATION, 18-24 June 2003



GERB images

- Every 15 minutes
- Shortwave and longwave radiances



CERES special coverage

GERB ground validation project (SCALES)

- Valencia Anchor Station at 1.24°W and 39.51°N
- FM2 on Terra and FM4 on Aqua
- CERES coverage on 06/14, 06/18-24, and 06/30

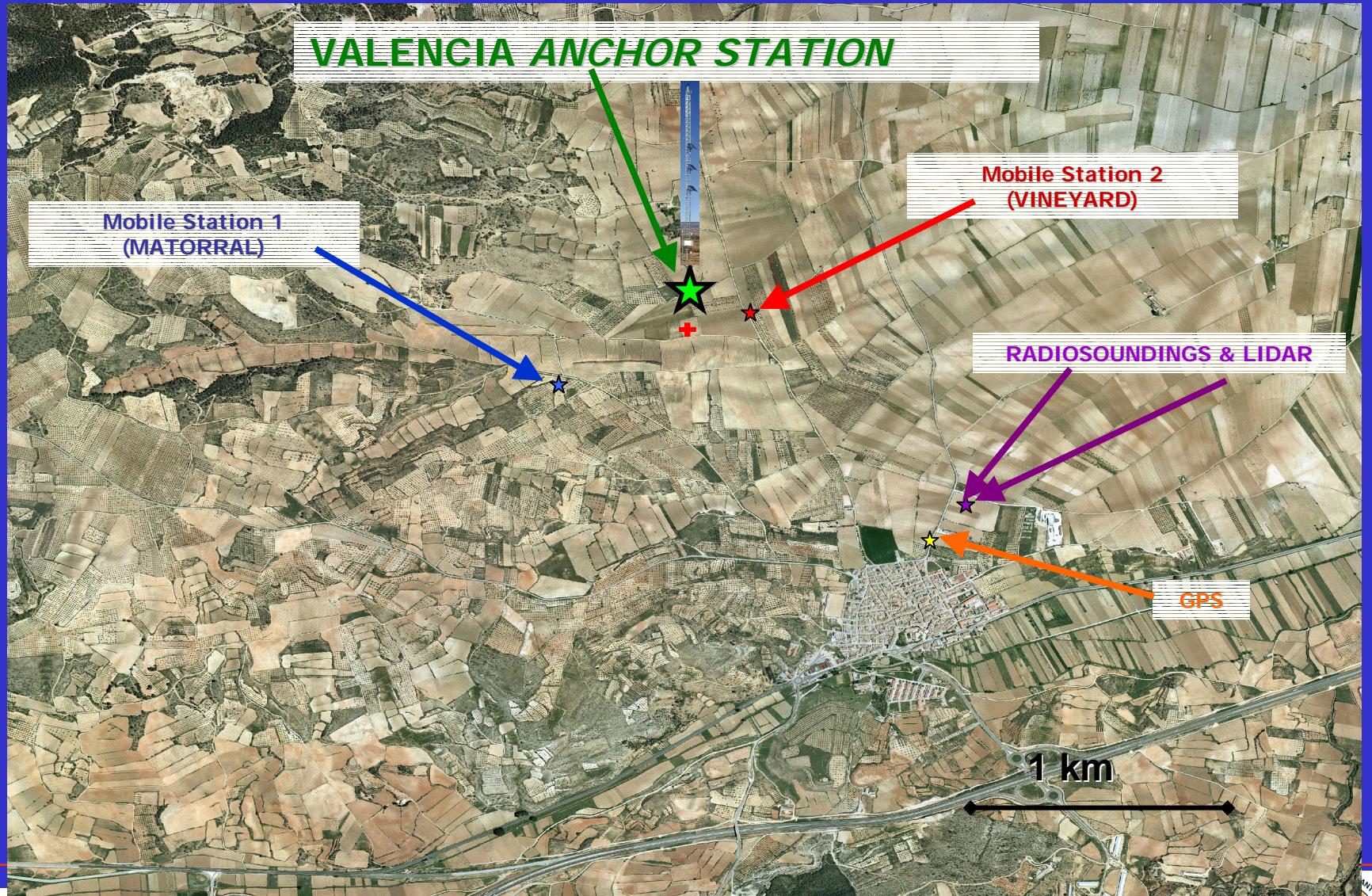
CERES in the Programmable Azimuth Plane Scan mode:

- Scanning Plane follows a prescribed schedule
- Increases sampling by an order of magnitude

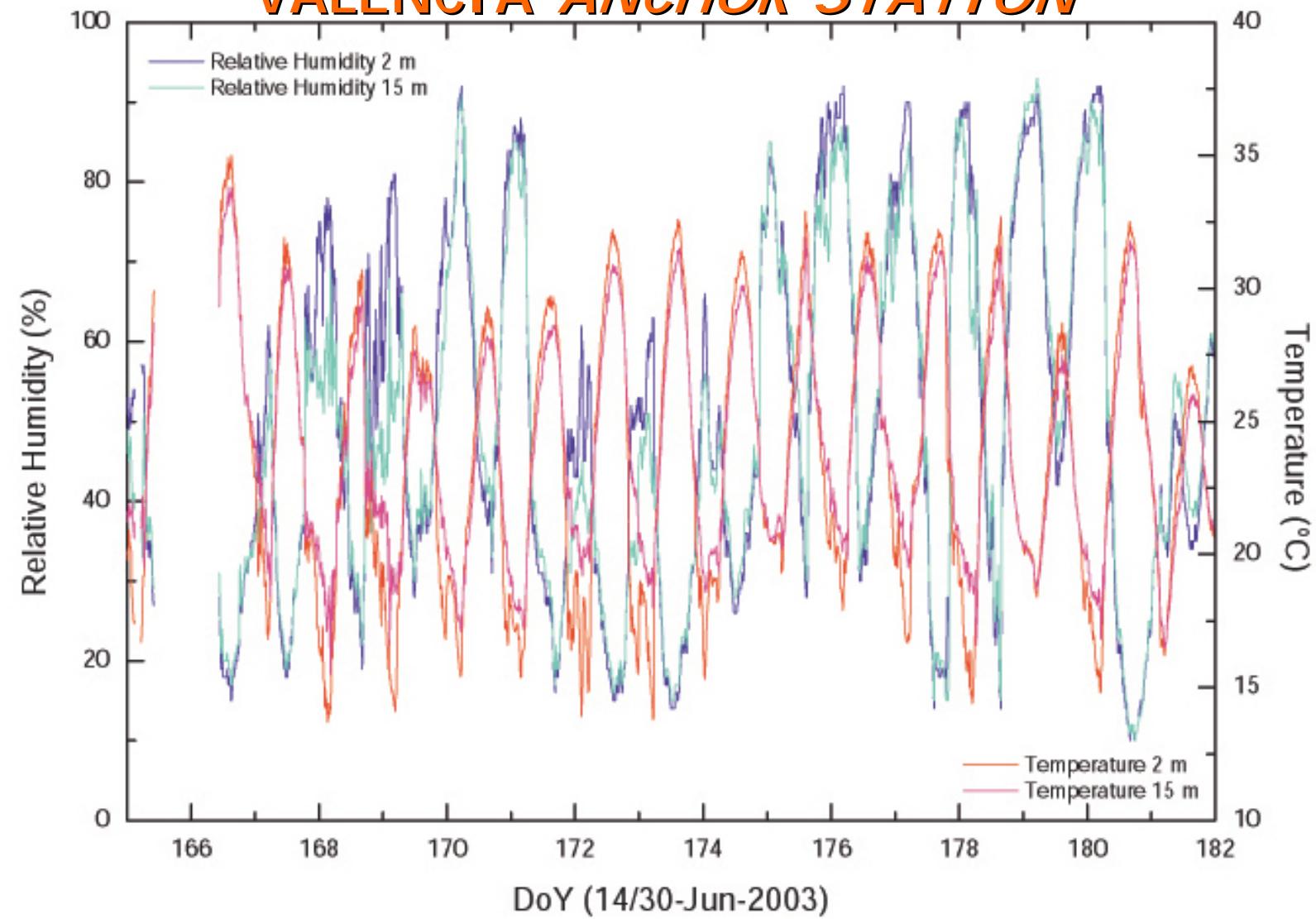
GERB validation ground station



Ground instrumentation during SCALES

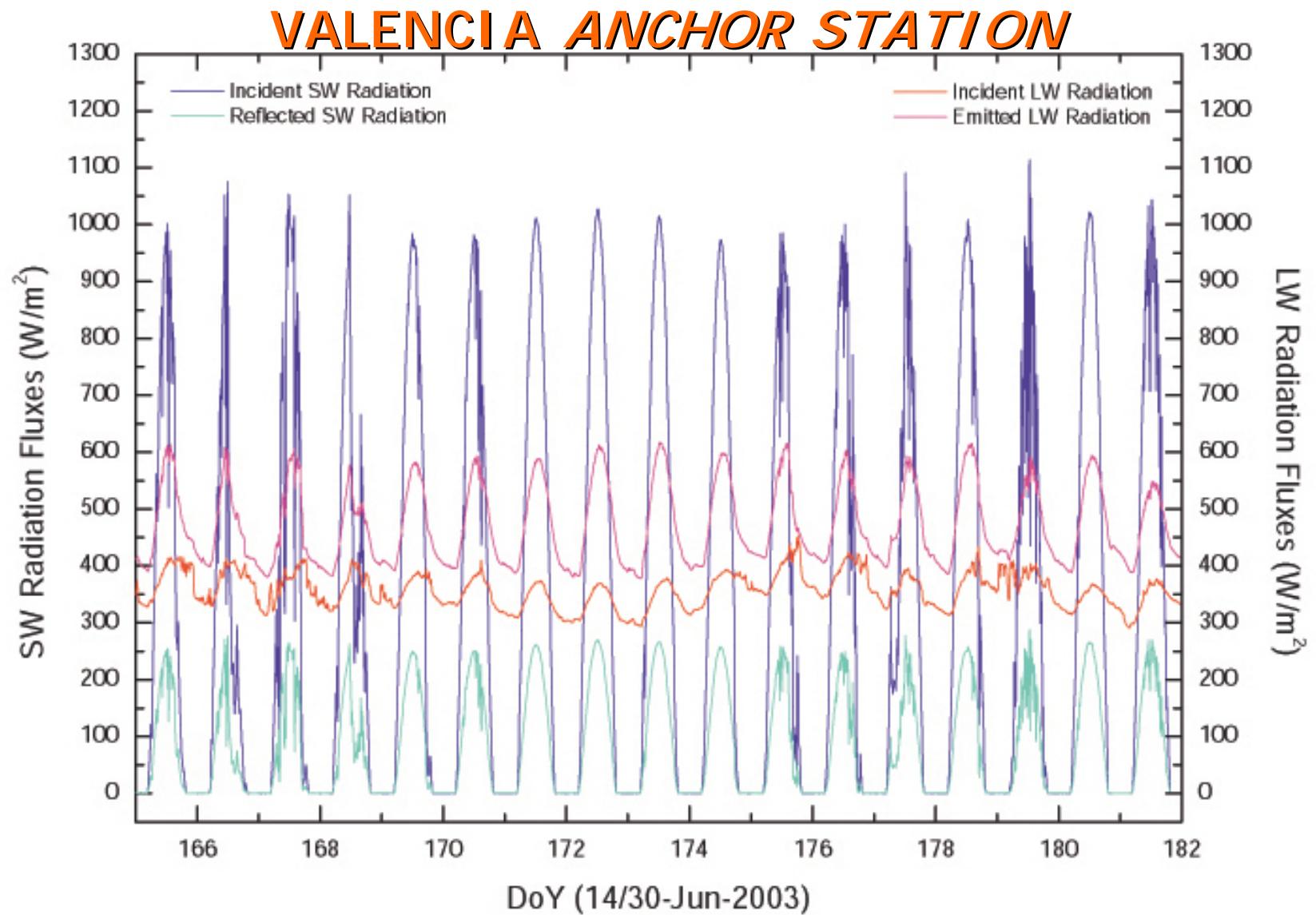


VALENCIA ANCHOR STATION



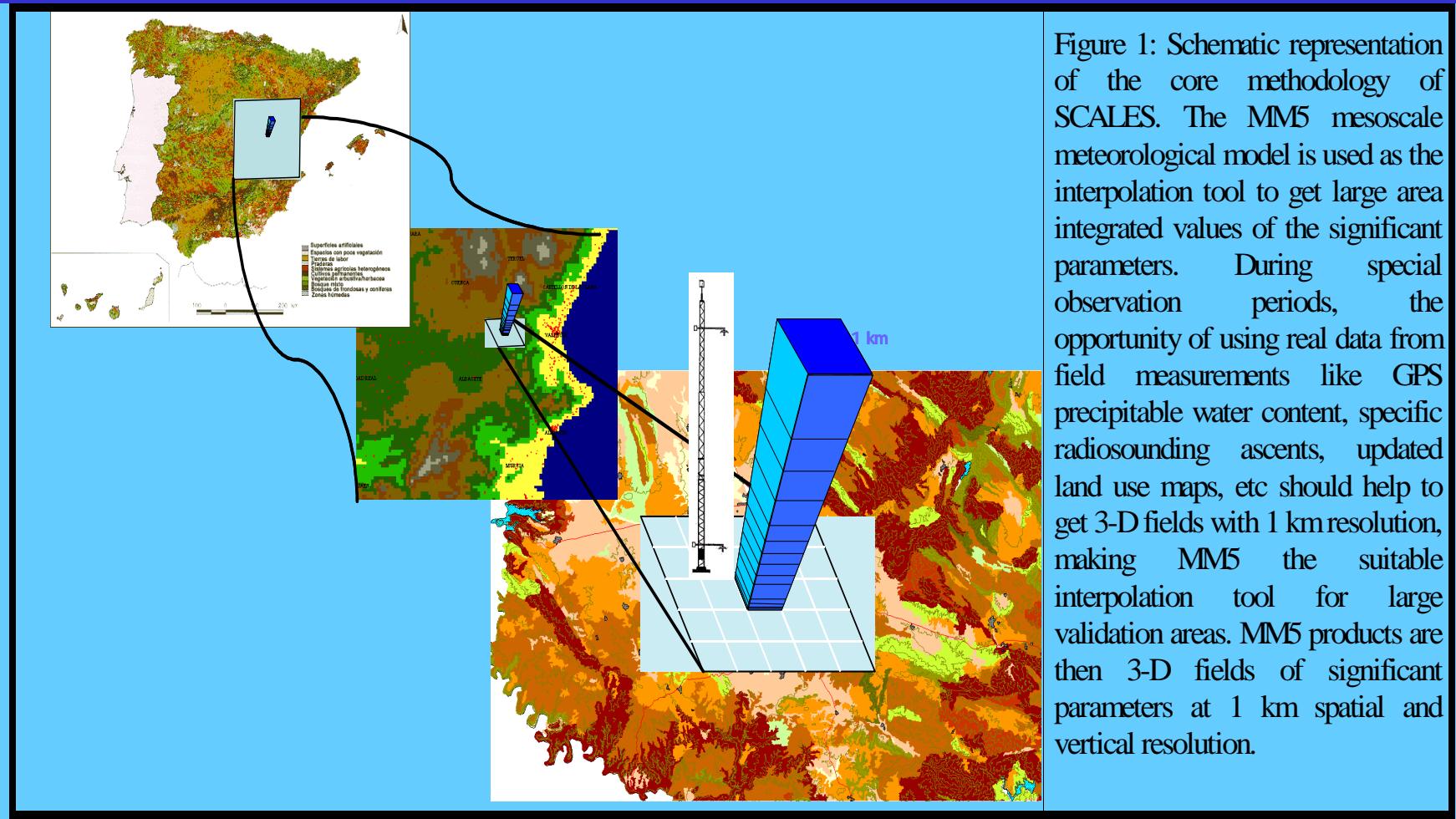


VALENCIA ANCHOR STATION



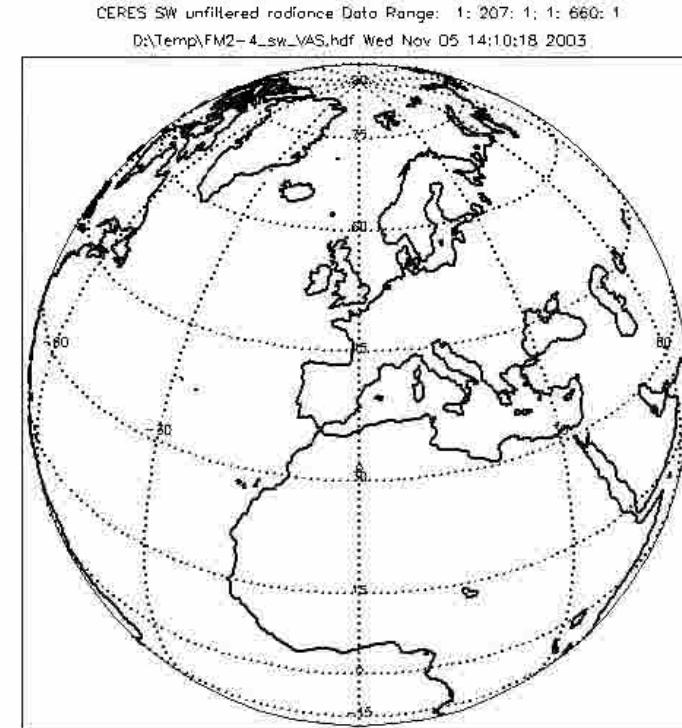
Mesoscale Meteorological Model (MM5)

High Resolution, 1 km, MM5 Simulations During the Campaign



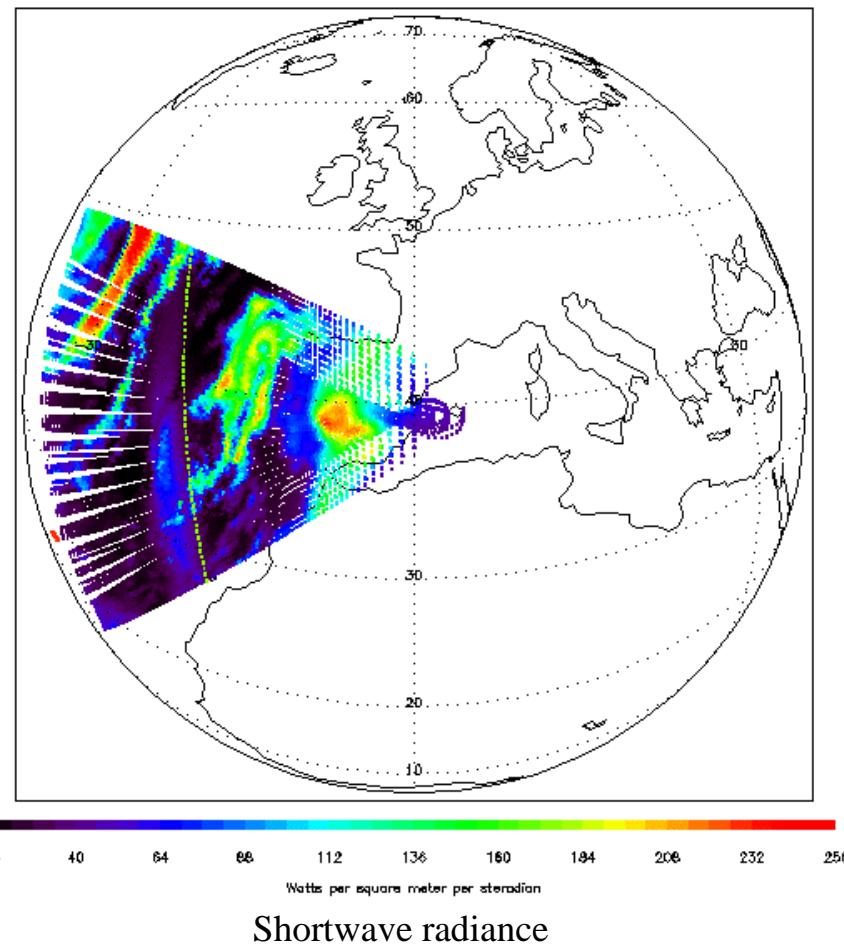
FM2-FM4 over Valencia

SW radiances on 06/14/2003



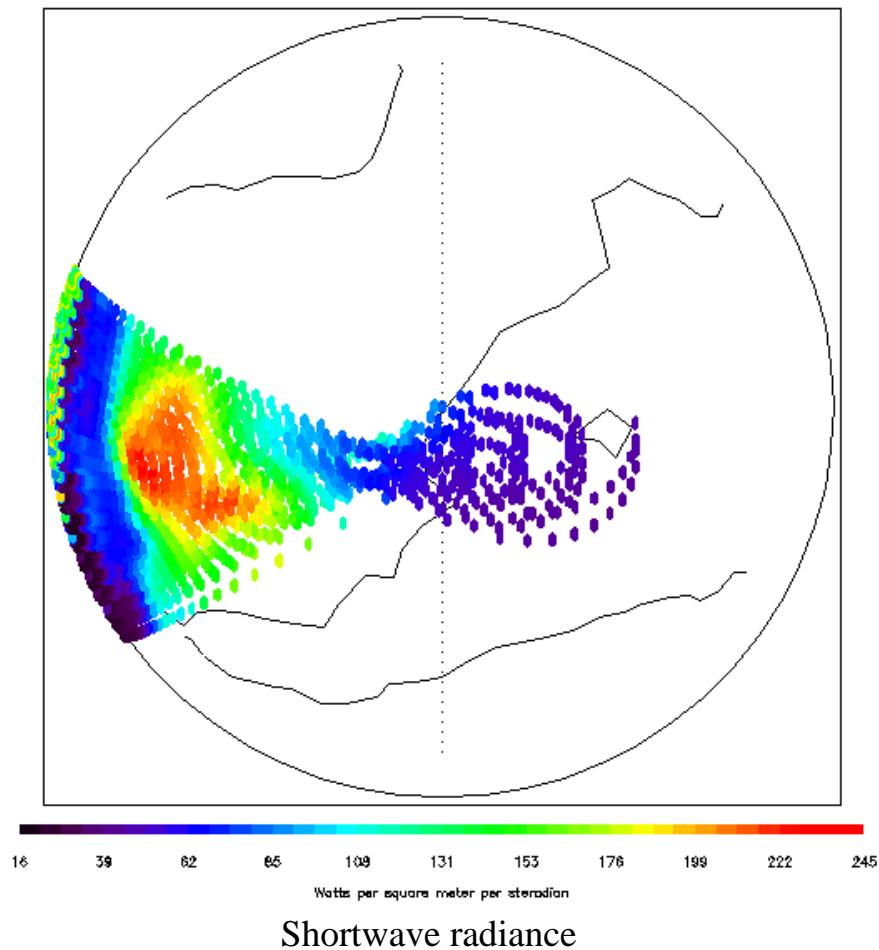
FM4 scanning pattern

Aqua pass at 14:12–14:18 on 06/14/2003; view from 2000km



FM4 scanning pattern

Aqua pass at 14:13–14:17 on 06/14/2003; view from 100km

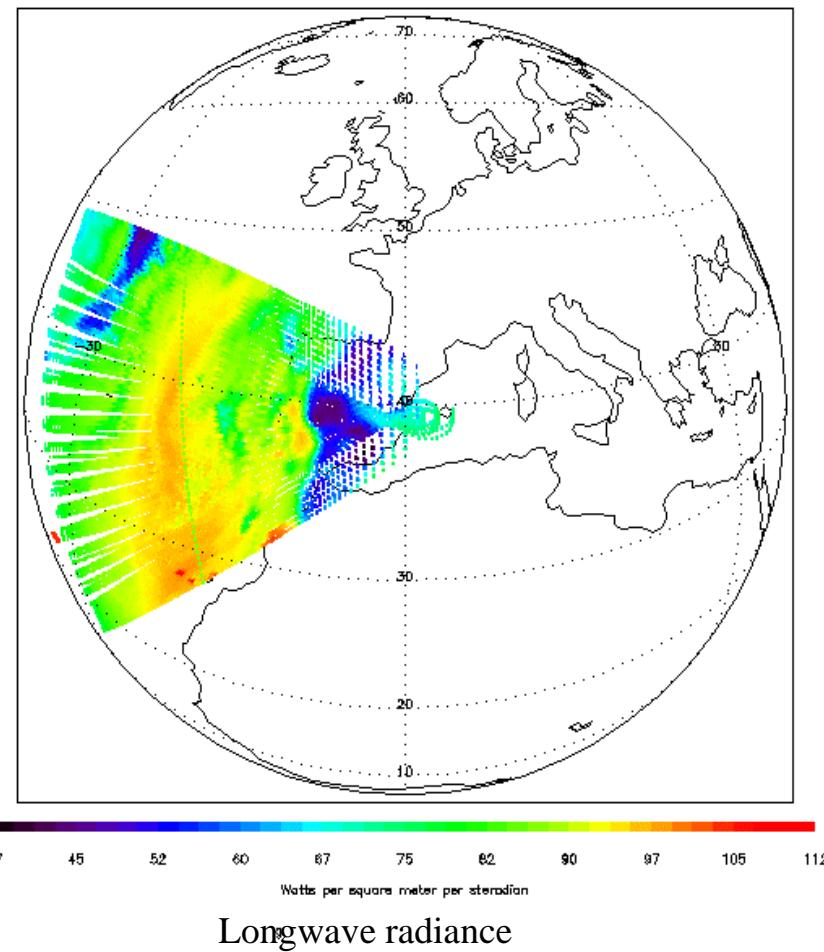


FM4 shortwave radiances

scan	n	μ	σ	VZA	SZA	RAZ
forward	21	92.9	23.7	74-77	33-35	167-226
backward	14	86.2	16.4	71-73	29-33	167-228

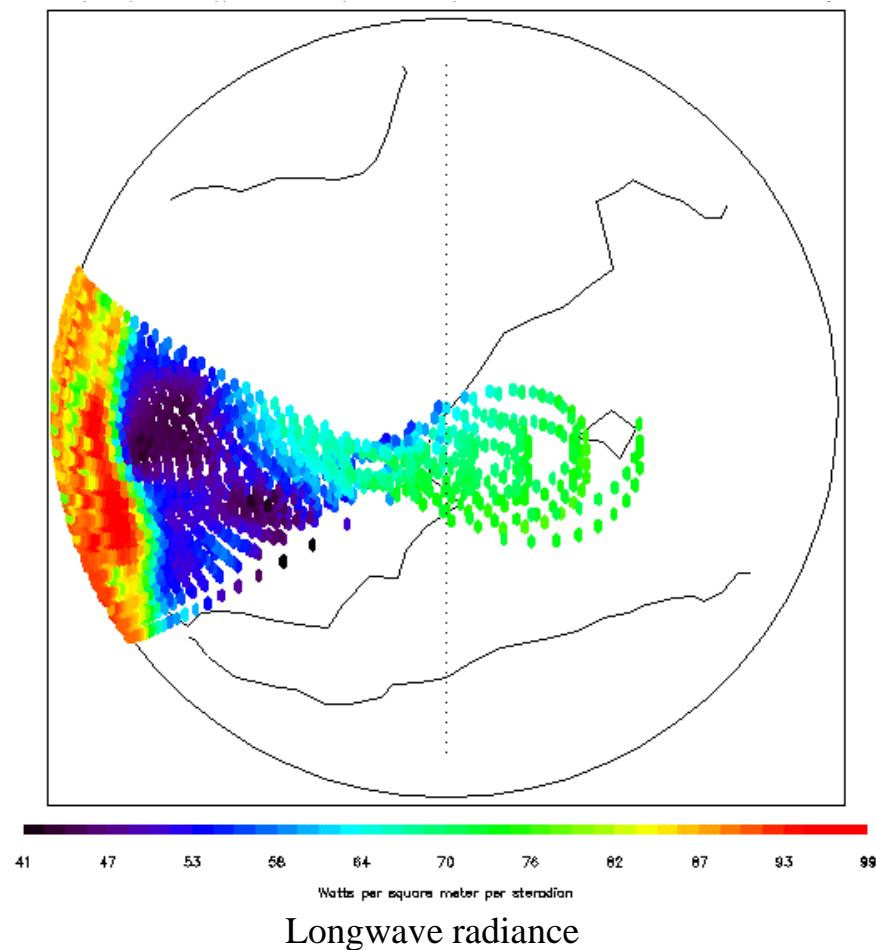
FM4 scanning pattern

Aqua pass at 14:12–14:18 on 06/14/2003; view from 2000km



FM4 scanning pattern

Aqua pass at 14:13–14:17 on 06/14/2003; view from 100km

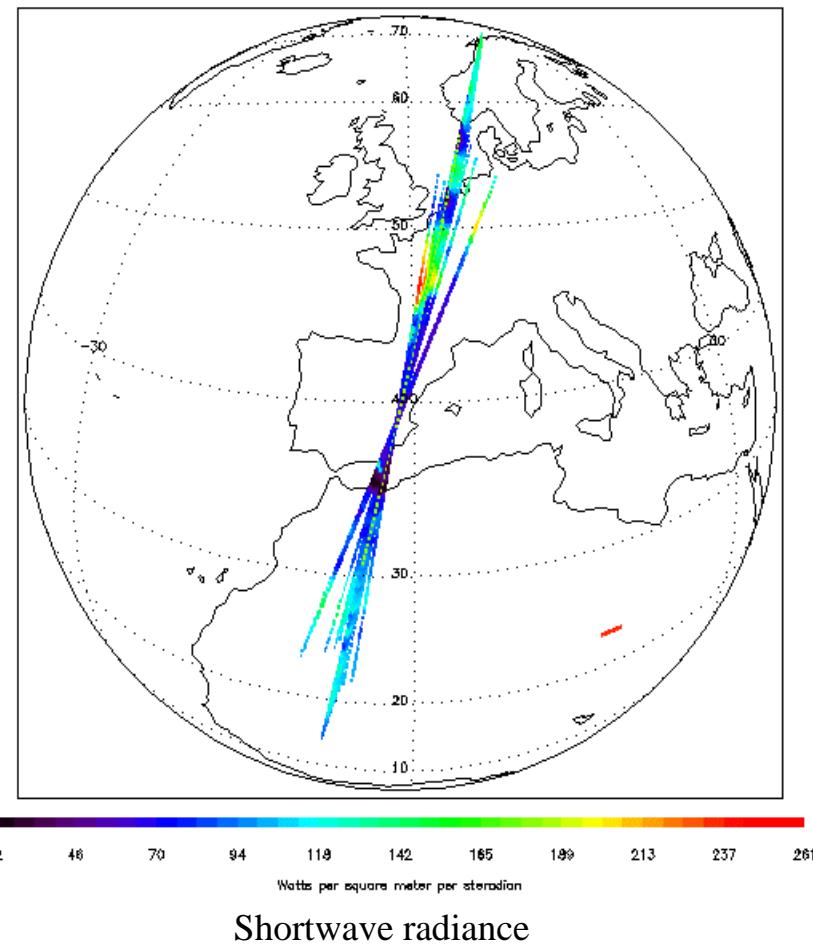


FM4 longwave radiances

scan	n	μ	σ	VZA	SZA	RAZ
forward	21	61.7	4.2	74-77	33-35	167-226
backward	14	65.8	5.1	71-73	29-33	167-228

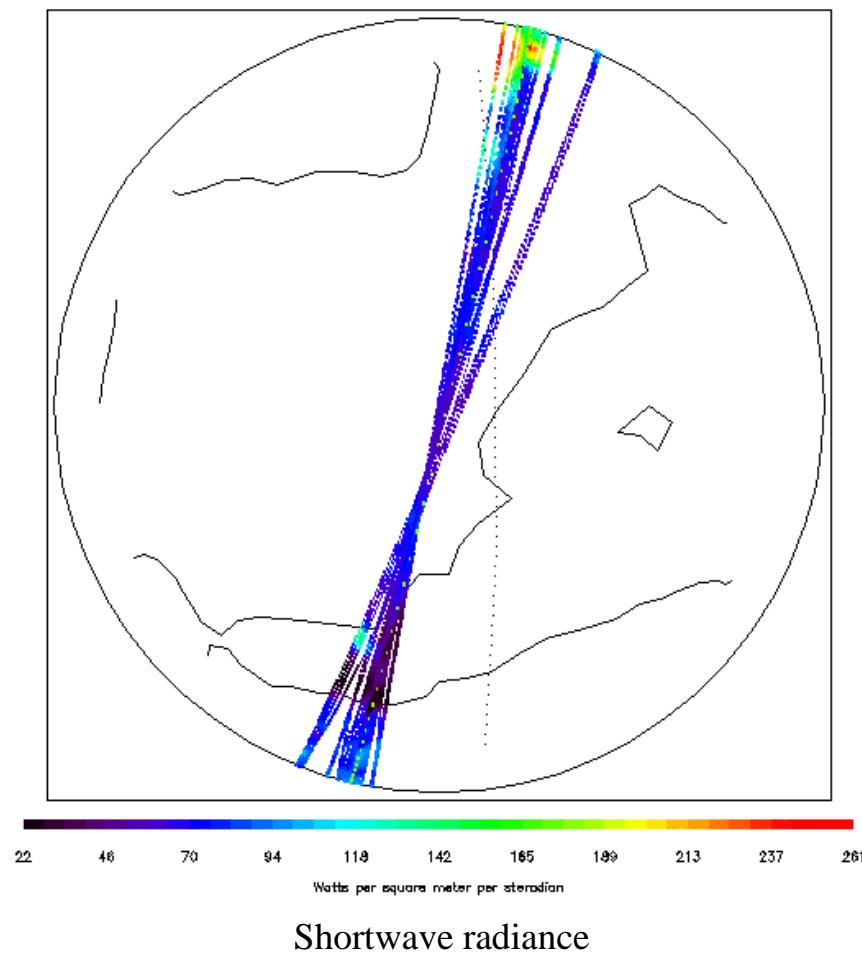
FM2 scanning pattern

Terra pass at 10:56–11:03 on 06/14/2003; view from 2000km

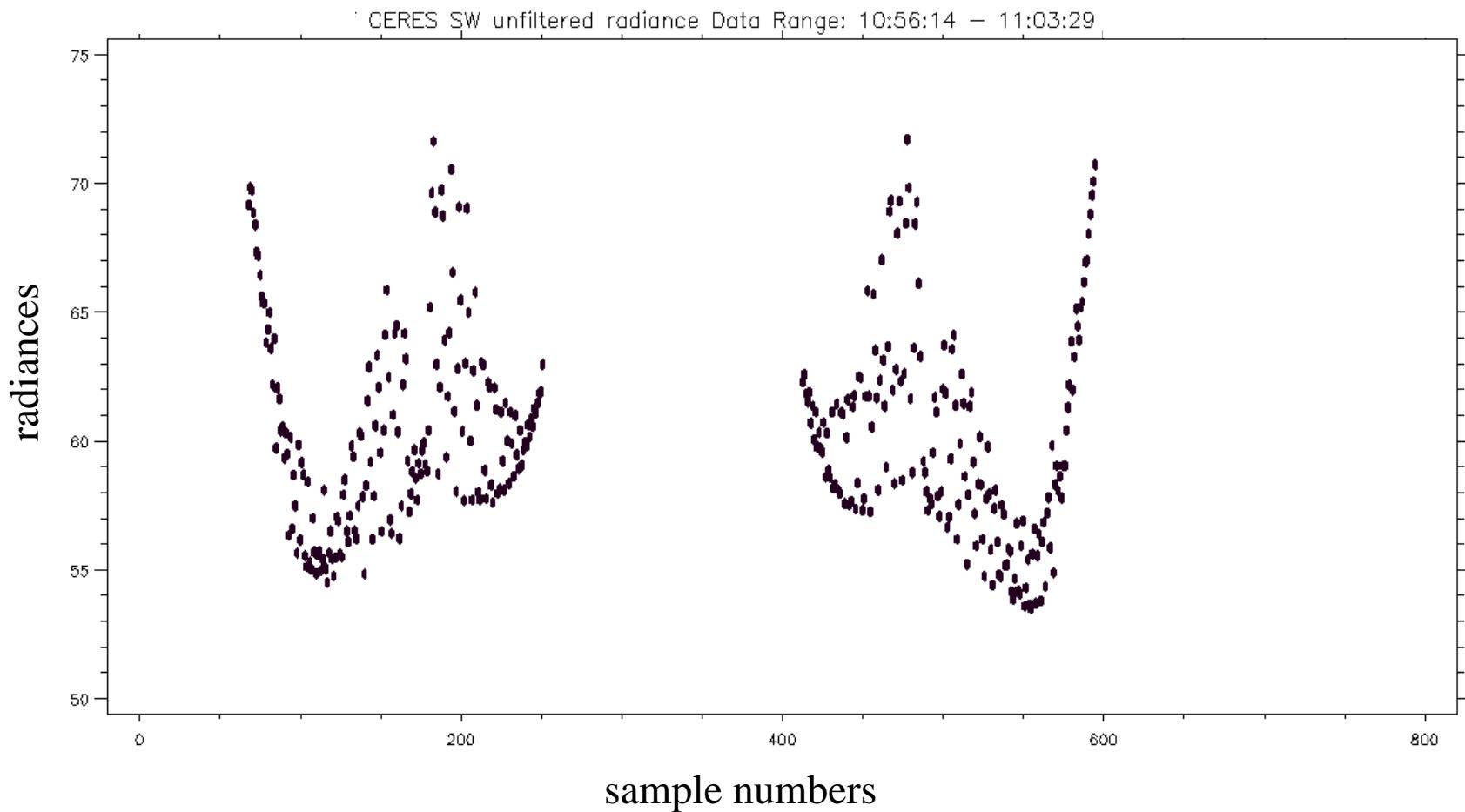


FM2 scanning pattern

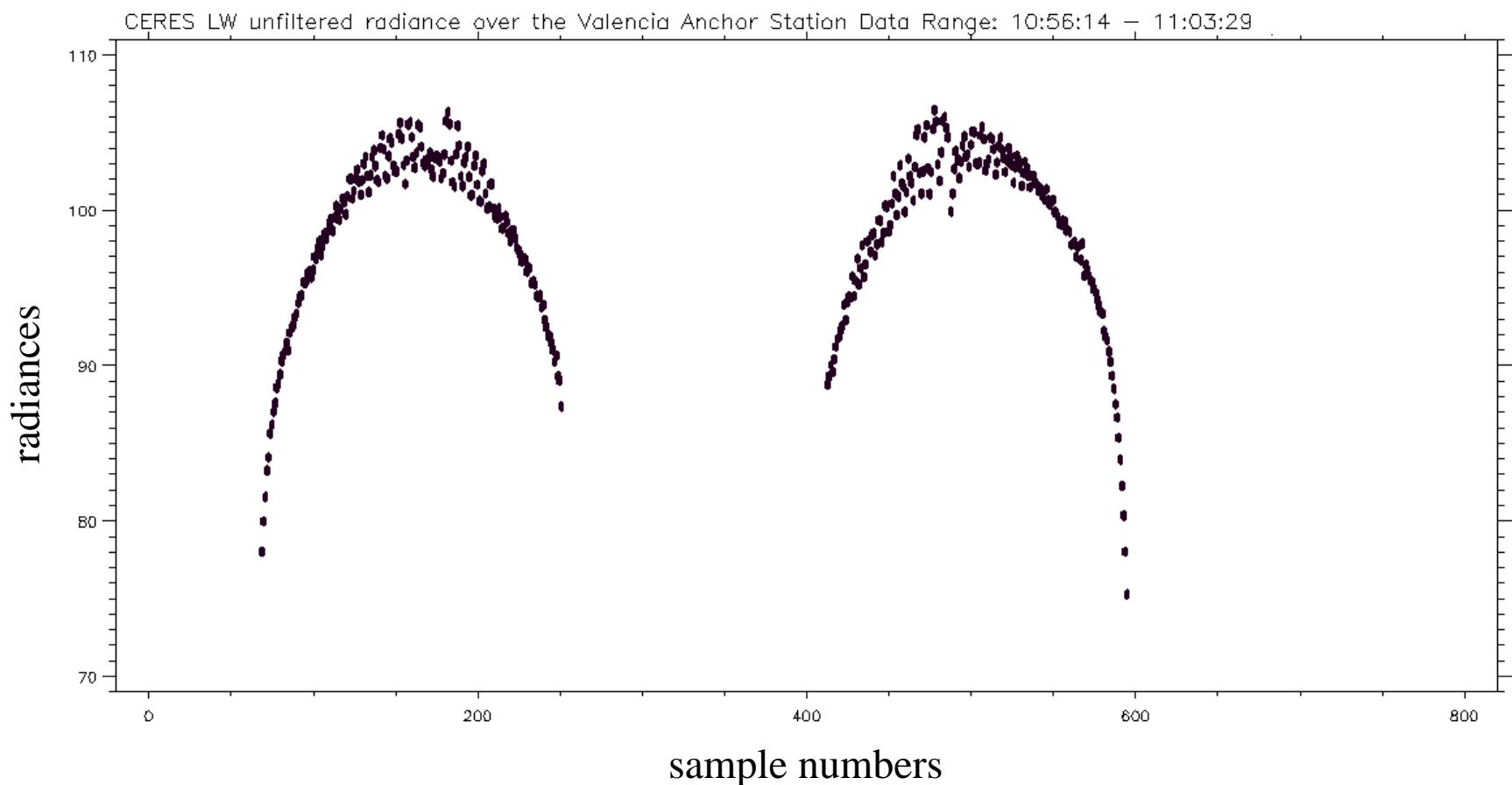
Terra pass at 10:56–11:03 on 06/14/2003; view from 100km



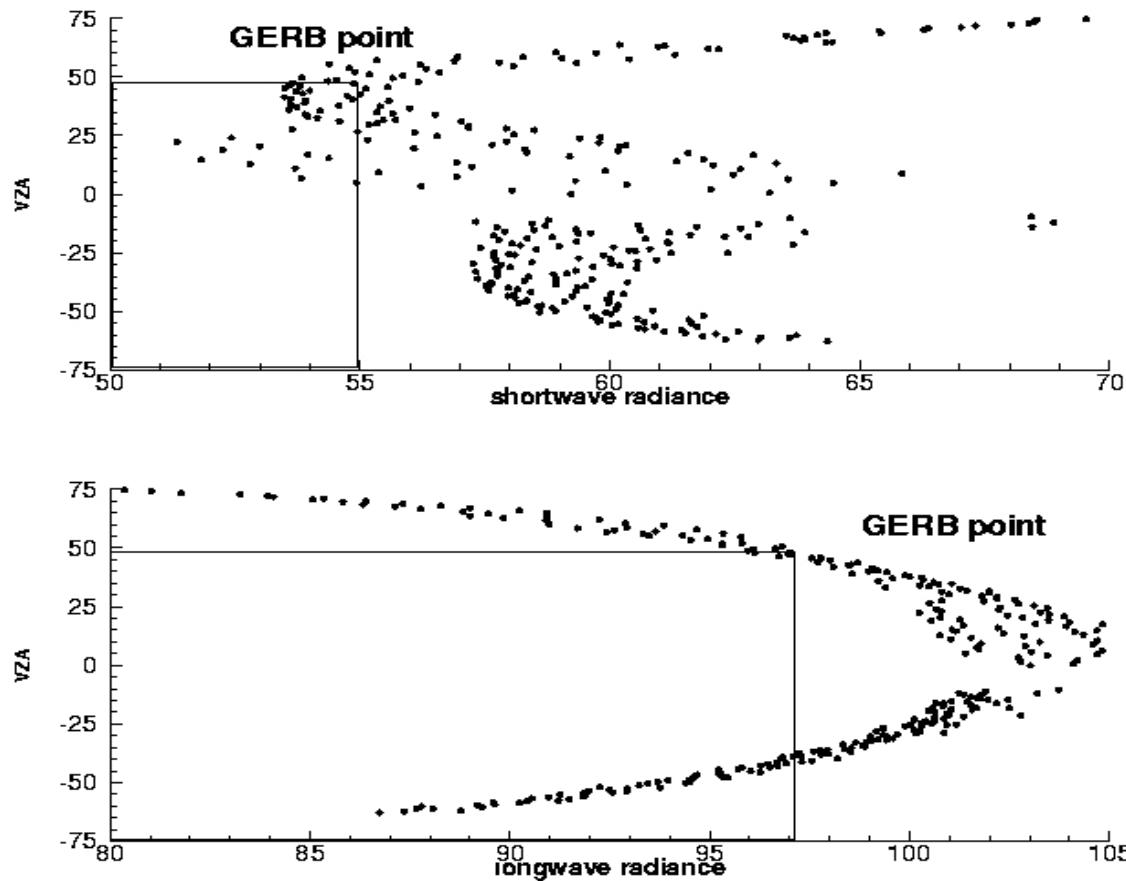
FM2 shortwave radiances



FM2 longwave radiances



GERB/FM2 on 06/23/2003



Flyover summary

DOY	165 06/14	169 06/18	170 06/19	171 06/20	172 06/21	173 06/22	174 06/23	175 06/24	181 06/30
Terra FM2	1	1	1	2	1	2	1	2	1
Aqua FM4	2	2	1	1	1	1	2	1	2

- FM2 scanned the Anchor Station 12 times
- FM4 scanned the Anchor Station 13 times

Concluding remarks

- Valencia Anchor Station is well equipped
- SCALES project has a dedicated staff
- Terra-Aqua campaign over Valencia collected a large amount of data
- Results hindered by a GERB pointing vector
- On-going effort to validate GERB radiances